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THIRD SESSION.

The President called the meeting to order at 2 40 p. m.

4. "Shakspere in the Seventeenth Century." By Mr. E. P. Morton, of Indiana University.

The paper was discussed by Professor A. H. Tolman. (Published in *The Journal of Germanic Philology*, Vol. I, No. 1.)

5. "Experimental Phonetics." By Professor Raymond Weeks, of the University of Missouri.

By means of instruments now in use, the student of Experimental Phonetics can study and record the movements of the following organs of speech: the glottis; the soft-palate; the lower jaw; the lips; the base of the tongue taken externally under the chin; the tongue as its action is indicated by the conduct of its upper surface with the hard-palate.¹ The movements of the tongue, properly speaking, cannot as yet be recorded, the nearest approach being the method described by Professor Grandgent in the *Pub. of the Mod. Lang. Assoc. of America*, sup. to vol. V, 2.² This method, although extremely slow and requiring the utmost patience and discretion, is none the less capable of great accuracy for single sounds. It may be doubted whether there has yet appeared in Experimental Phonetics any work more accurate than the above-mentioned researches of Professor Grandgent.

It is also possible to record by means of instruments the action of the diaphragm, which determines the action of the lungs; the variations and vibrations in the air which comes from the nose; the variations and vibrations in the column of air which comes from the mouth; the varying pressure and vibrations of the air taken within the mouth.³

¹ Most of the instruments used for these purposes may be found described in an article in the *Revue des Patois Gallo-Romans*, 1891, republished later under the title: *Les Modifications Phonétiques du Langage*, par l'Abbé Rousselot, Paris, 1891. Cf. also: *Bulletin de l'Institut Catholique*, Nov. 1894, Paris, Ch. Poussiélgue, and the last catalogue of Ch. Verdin, Rue Linné, 7, Paris, (1896).

² See also, by the same author, *German and English Sounds*, Ginn & Co., 1892, especially pp. 22 +.

³ Some of the instruments here referred to will be found in the references already given. For others see: Ph. Wagner, *Phonetische Studien*, iv, and vi; Koschwitz, *Herrig's Arch.*, lxxxviii; Vietor, *Die Neueren Sprachen*.

The person who has done most in the invention of instruments useful as mentioned above, is Dr. Rosapelly, of Paris. The best laboratory at this time is that of the Abbé Rousselot, at the Institut Catholique, at Paris.¹

One of the most serviceable and accurate instruments mentioned is that for recording the varying pressure of the air in the mouth. This instrument, called the spirograph,² consists of a small metal tube connected with a rubber tube to a recording tambour, and so bent as to pass around the side of the mouth and terminate inside the chamber of air which is put under pressure and exploded in forming k or g. The metal tube is held lightly in the corner of the mouth, like a tooth-pick. The principle of the instrument will be clear from the following comparison. If a tube connected with a tambour be held between the lips and a p or b exploded, the end of the tube being within air-chamber put under pressure to form the p or b there will be produced by the index of the tambour a motion corresponding to the degree of pressure within the air-chamber. If, however, instead of a labial, a dental be pronounced, the index will not respond, because the end of the tube is not back of the point where the tongue touches the hard-palate to form the closure necessary to a dental. If now the end of the tube be thrust far enough back to terminate behind the point of closure, the index will instantly answer to the pressure. Furthermore, if with the tube in this position a labial be produced, the index will answer just as when the tube was held further forward between the lips. If, however, a k or g be pronounced with the end of the tube as just described, i. e., slightly back of the point of closure for a dental, the index will not answer, since the tube does not extend far enough back to tap the air-chamber whose explosion constitutes k or g. Is it possible so to bend a small metal tube that, without falsifying the action of any organ, it shall terminate back of the point of closure where k and g are exploded? If so, we shall have an instrument which will record k and g, and, with no change of position, all the explodents in an ordinary language, since the points of closure of these other explodents are further forward in the mouth. Such an instrument is the spirograph. This instrument not only records the above-mentioned explodents, be they gutturals, dentals, or labials, but any consonant (such as s, f, f) which demands a damming-up, so to speak, of the air in the mouth, thus causing an increase in the pressure, will be

¹ It is reported that the French Chamber has passed an appropriation for establishing a fine laboratory at the *Collège de France*, the Abbé Rousselot to be put in charge. This measure is due to the efforts of Gaston Paris and Michel Bréal. Dr. Rosapelly's address is, 10 Rue de Buci, Paris.

² A short description of this instrument may be found in the *Proc. Phil. Soc. of America*, 1895; and also, together with certain experiments and their result, in the *Année Psychologique, Première Année*, Paris, 1895, Félix Alcan, p. 74.

recorded. The consonants producing the smallest result are those approaching nearest the nature of vowels, such as l, r, n, m.¹

It will thus be seen that the spiograph offers a means of recording the CONSONANTS in natural speech.² When it is added that the instrument records perfectly for the normal rate of speech, one sees to what a variety of uses it may be put. Furthermore, one may record synchronously the vibrations of the glottis, taken for instance with the trembleur of Rosapelly. These vibrations, recorded on a line immediately above or, better, below that written by the spiograph, permit us to carry to an unprecedented degree of exactness the analysis of human speech. The spiograph records the consonants, the trembleur the vowels. One has only to drop a perpendicular from any point of either line to the other, to determine the relative action at that given instant of the glottis and the organ or organs producing the consonant.

By the employment of a hollow wire in the apparatus for the recording of the movement of the soft-palate,³ one may go one step further, obtaining at the same instant the information offered by this instrument and the spiograph also.

Professors G. E. Karsten, A. H. Tolman, and W. H. Carruth made remarks upon this paper.

6. "Christian coloring in the *Beowulf*." By Professor F. A. Blackburn, of the University of Chicago.

Remarks were made by Professors C. A. Smith, G. E. Karsten, L. Fossler, G. L. Swiggett, B. F. Hofmann, A. H. Tolman, F. Lange, and the author.

FOURTH SESSION, DECEMBER 31.

The President called the Fourth Session to order at 9.25 a. m. Several names were recommended for membership in the Association.

¹ In addition to this, the vowel i is recordable.

² The record obtained is divided into segments which stand out clearly to the eye. These segments are the breath-groups, since each inhalation causes a movement of the index in the opposite direction from that of the consonants, which are expirations.

³ See *Harvard Studies in Philology and Literature*, vol. II, 1893. Cf. H. Allen, *On a new method of recording the motions of the soft-palate*, *Transactions of the College of Physicians*, Philadelphia, 3 s., vol. III. This method is simply that of Czermak, and is commented on by Techmer: *Intern. Zeitschrift für allgemeine Sprachwiss.*, I, 501; II, 287.

The Committee on Time and Place of next meeting reported as follows :

“We recommend that the time and place of next meeting be left to be determined later, after conference with other associations of scholars representing the same territory and meeting at about the same time.”

After some remarks of the Secretary on the difficulties of such an arrangement the report was accepted.

7. “Modern Languages in College entrance requirements.”
By Dr. A. F. Nightingale, Superintendent of High Schools, Chicago.

If, as seems certain in accordance with the demands of the secondary schools which are and forever must be in close touch with the people, and in accordance with Divine law that no two minds need the same diet for their best development, many colleges are to give the Modern Languages the same recognition as the Ancient, others to allow German or French as a substitute for Greek, and a few still to demand a third foreign language, in addition to Latin and Greek, it is necessary for us to fix some uniform units of measurement, consistent with these plans. Shall these units be based upon time or quantity? It will be easier to say time; it will be more logical to say quantity; it will be nearer just to combine these elements. If, for instance, a pupil is to offer German or French in addition to four years of Latin and three years of Greek, the time element will depend on the time at the pupil's disposal. It will make a great difference whether he pursues the modern language the first two, the middle two, or the last two years of his course. A majority of secondary pupils seem to take on years of added intelligence between June of the second year and September of the third year.

Since it is impossible to dictate at just what time in the course these two years of extra modern language work may come, let us suit the quantity to what pupils of average ability may accomplish in the second and third years of a High School course, and call it elementary French or German. If these pupils should pursue the study the last two years, they would find the task somewhat easy of accomplishment, and if the first two years, quite difficult. Generally speaking, the pupil will take the Modern Language the last two years, if his intentions for college are fixed when he enters the High School, but alas! how few there are of such, and how many have denied themselves a college education because, forsooth, they have neglected Latin and Greek, and could find no great college ready to welcome them and accord them equal privileges.